

## REMARKS

Each of the pending claims 1-23 have been rejected under 35 U.S.C. § 103 as being unpatentable over Rose et al. (U.S. Patent No. 5,297,230) in view of Urbanski (U.S. Patent No. 5,668,871).

Claims 3, 5, 6, and 10-19 have been cancelled without prejudice. Their cancellation is due to a potential lack of clarity with respect to various terms. For example, see part (a) (iii) of claim 6 and part (c) of claim 10.

With respect to the prior art rejection of the claims, Applicant respectfully traverses. Applicant respectfully submits that the interpretation of the Rose et al. patent, as set forth in the Office Action, is incorrect in that the Rose et al. patent does not teach or suggest the arrangement and operation of the hands-free transmit and receive registers as set forth in the claims. Further, the combination of the Urbanski patent with the Rose et al. patent, assuming *arguendo* that the combination is appropriate, does not realize a hypothetical system corresponding to the invention claimed.

As discussed at page 2 of the Office Action, Rose et al. is directed to a digital cordless telephone apparatus 100. Figure 8 of the Rose et al. patent illustrates the transmit and receive paths. The receive path shows microphone 140 coupled to a speakerphone 190 and to an audio filter 141. The output of the audio filter drives the input of an ADC 142. The output of the ADC 142 drives the transmit register 143. The receive register 178 drives the input of a DAC 179, which in turn drives the input of an audio filter 180. The output of the audio filter is amplified and used as an input to the speaker 182. As can be seen from Figure 8 and the above discussion, the characterization of the "hands-free registers" and the "analog-to-digital converters" as set forth in paragraph 2 of the Office Action is erroneous. Figure 8 of the Rose et al. patent discloses

only one analog-to-digital converter, and this analog-to-digital converter is in the receive path only.

The Urbanski patent is referred to in the Office Action for its teaching of digital attenuators (305 and 307 of Figure 3). The Office Action explains that it would have been obvious to modify the portable handset of Rose et al. to include the digital attenuators of Urbanski. In view of the above discussion of the Rose et al. patent, it should be clear that including digital attenuators (as taught by Urbanski) in the arrangement of Figure 8 of the Rose et al. patent, would not overcome the acknowledged deficiency in the structure taught by Rose et al. Alone or in combination with Urbanski, the Rose et al. patent does not teach or suggest the invention claimed.

Claim 1, for example, includes “a first analog-to-digital converter connected to the hands-free receive register” and “a second analog-to-digital converter connected to the hands-free transmit register.” In contrast, Figure 8 of the Rose et al. patent teaches a digital-to-analog converter connected to a receive register 178.

Claim 2 includes the limitations “a codec having first and second programmable digital attenuators ....” The Office Action indicates that the skilled artisan would be motivated to employ the digital attenuator of Urbanski to “provide attenuated transmit and attenuated receive signals effectively and efficiently.” While the Applicant does not necessarily agree with this statement, there is no motivation indicated in the Office Action (and Applicant has found none in the asserted references) for including in a such a hypothetical structure “a codec having first and second programmable digital attenuators.”

Claim 4 is dependent on Claim 2 and is therefore believed to be distinguishable for at least the reasons discussed above.

Claim 7 is an independent claim directed to a method of operating a near-full duplex speakerphone, including the step of "directing the reading of the hands-free registers, and determining the peak volume levels of both speech paths." In response, the claimed method involves "digitally adjusting the microphone and speaker gains in relation to the [determined] peak volume levels." This methodology is not taught or suggested in the Rose et al. patent. The Office Action makes reference to column 24, lines 15-24 of the Rose et al. Patent, but this does not seem to support the rationale for the rejection. The Office Action also makes reference to Figure 19 which shows a circuit diagram for digital volume control 454 for digitally adjusting the microphone and speaker gains in relation to the peak volume levels. The discussion of Figure 19 in column 27 of the Rose et al. patent, however, indicates that these are the drawings of the schematic circuit for unrelated portions of the base unit 110. The Applicant respectfully submits that this teaching does not render the invention claimed in Claim 7 obvious, and requests that the rejection be withdrawn.

With respect to dependent claims 8 and 9, the Office Action references Figure 10 of the Rose et al. patent for its teaching of a microprocessor 183, together with command data voice data interface in a watchdog timer. Claim 8, including its base-claim limitations, is believed to be distinguishable at least for the reasons set forth above. Further, as set forth in Claim 9, the invention requires a software timer to generate a hardware interrupt on every speech frame so that one of the hands-free registers can be read by software peak detector. The Applicant sees no correlation between this teaching in Figure 10 of the Rose et al. patent and these limitations set forth in Claim 9.

Claim 20 is an independent claim including limitations directed to a control algorithm which contains noise threshold information associated with the audio

information signal, and wherein the amplitude of the audio information signal is adjusted when the amplitude is greater than the noise threshold information. The Office Action does not indicate that these limitations are taught or suggested by the asserted prior art and Applicant does not recognize how the prior art might render the invention, as claimed, obvious.

The remaining claims 21-23 are dependent and are believed to be distinguishable from the prior art for at least the reasons set forth above in connection with claim 21.

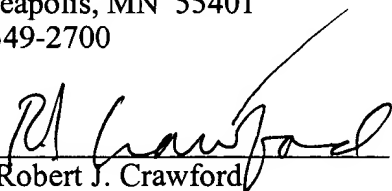
In view of the discussions set forth above, the Applicant respectfully requests that the rejections be withdrawn. A favorable response is earnestly requested.

Please direct further correspondence to the undersigned at the new address provided below.

Respectfully submitted,

CRAWFORD PLLC  
333 Washington Avenue North  
Suite 5000  
Minneapolis, MN 55401  
612/349-2700

By:

  
Robert J. Crawford  
Reg. No. 32,122